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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,622	03/26/2001	Anwar Chitayat	99AN122-E	8382

7590 11/30/2005

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 11/30/2005

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/817,622
Filing Date: March 26, 2001
Appellant(s): CHITAYAT ET AL.

MAILED

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GROUP 2800

Himanshu S. Amin
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For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

1. This is in response to the reply brief filed 17 January 2005. Receipt of the reply brief is acknowledged. The reply brief will be entered.
2. In response to the new issues raised in the reply brief, the examiner furnishes a supplemental examiner's answer addressing each new issue raised in the reply brief regarding each grounds of rejection (A)-(D).

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A. Claims 1-4, 6-10 and 17-21 rejected over Kemmer (US 4234831) in view of Spinner et al. (US 5771174) and Mizutani (US 5532533)

Applicant argues that Kemmer does not teach or suggest a control system that is integrated together with the rotary-linear motor to form a single unit that includes an amplifier to selectively energize the coils. Applicant argues that Kemmer's Fig.4, rather than providing an amplifier, discloses a digital-to-analog converter. The examiner concedes that Kemmer's circuit in Fig.4 does not show or suggest an amplifier. The transistors T1-T8 function as switches. Neither Spinner nor Mizutani disclose or suggest an amplifier and therefore this rejection is withdrawn.

B. Claims 11-15 rejected over Sudo et al. (US 4644205) in view of Spinner et al. (US 5771174) and Mizutani (US 5532533)

Applicant argues that Sudo does not teach "an array of magnets associated with the plunger, wherein half of the magnets are oriented such that their north poles point radially outward and the other half such that their north poles point radially inward" (claim 11).

However, this argument is not persuasive since Sudo Figs.5-7 shows an array of eight radially-magnetized magnets 34a-34d and 36a-36d on plunger (floating member) 14. The four magnets 34a-34d are "magnetized in the opposite direction to the permanent magnets 36a-36d" (c.3, lines 22-24). In other words, the four magnets 34a-34d have north poles facing radially outward while the other four magnets 36a-36d have north poles facing radially inward (Fig.7).

Applicant further argues that Sudo does not have "an integrated control system".

Applicant apparently is arguing that Sudo does not teach the recited claim language of "wherein

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the integrated control system and an associated rotary-linear motor are integrated into a single module” (claim 11). Sudo’s control system 66 is “integrated” in the sense that it comprises a unit that is electrically connected to and controls the coils; however, Sudo’s control system is not “integrated into a single module” with the rotary-linear motor, as the examiner has conceded.

The secondary reference to Mizutani teaches this feature. As recited in the rejection, Mizutani’s motor and printed circuit board 58 are integrated into a single module since the circuit board is fitted to a portion extending in the radial direction of bearing 5 from the housing 51b and is loaded with power circuit 31 and signal processing circuit 24. A printed circuit board 60 is layered with the printed circuit 58 via a spacer 33 and is loaded with control circuit 32 and fixed to chassis 51 (c.6, lines 42-49). Among other advantages (c.11, lines 6-67), the integration of the control with the motor does not require sockets and terminals (c.8, lines 41-43); the heat generated by switching loss, etc., of the transistors in the power circuit may be transmitted to cooling fins, to improve cooling efficiency (c.8, lines 53-59); and water and/or oil is prevented from entering parts of the circuit (c.9, lines 16-20; 30-41).

C. Claims 1-4, 6-10 and 16-21 rejected over Sudo et al. (US 4644205) in view of Spinner et al. (US 5771174), Gerard (US 4751437) and Mizutani (US 5532533)

Applicant argues that none of the references teaches “a plunger moveable along and rotatable about a longitudinal axis extending through the plunger, wherein the plunger is supported against a motor support via bearings”. In particular, applicant argues that Sudo’s plunger (floating member) 14 is not supported against a motor support (stationary member) 12” via bearings, i.e., that there is no “facility to dispose of bearings between the floating member

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and the stationary member.” However, the language “wherein the plunger is supported against a motor support via bearings” is read as meaning simply that the bearings support the plunger relative to the motor support. This broad interpretation does not conflict with applicant’s more specific description of air bearings 76 on which the plunger element 26 “floats” (specification p.4, line 24; Fig.1a). The “plunger element 26 is free to move axially and rotate about its axis supported on air bearing 76” (specification p.4, line 14; Fig.1a). Motors 45 and 46 “contain coils that generate changing fields that interact with the fields generated by magnets 25 to generate a motive force on plunger element 26” (specification p.5, lines 15-17). Sudo’s electromagnetic bearing uses electromagnetic field interaction between coils 42/44 and 50a-50h and magnets 34a-34d and 36a-36d to levitate and support the plunger (floating member) 14 “against” or relative to motor support (stationary member) 12.

Applicant argues that the rejection is based on hindsight. However, the claims are read as broadly as reason permits in light of applicant’s specification. It is not unreasonable in light of applicant’s disclosure to interpret the claim language “wherein the plunger is supported against a motor support via bearings” as meaning simply that the bearings support the plunger relative to the motor support.

Applicant’s argument that his invention provides “grooves through which the bearings can be disposed” is irrelevant because no such grooves are recited in the claims.

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D. Claims 22-27 rejected over Sudo in view of Horikoshi et al. (US 5142172), Gerard (US 4751437) and Spinner et al. (US 5771174)

Applicant argues that the feature of “a control system and a network interface integrated into a single module, the control system integrated with a rotary-linear actuator” is not taught by the references. In particular, applicant argues that the teaching in the secondary reference Spinner of an intelligent actuator controller 30 (with integrated network interface or transceiver 72) “preferably mounted on the body of the actuator [26]” is not a teaching of this feature since “the act of mounting one object on to another object does not constitute integrating one object into another” and Spinner’s arrangement implies that the controller and actuator are distinct entities.

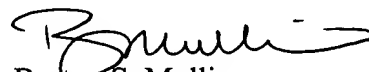
To the contrary, the examiner’s position is that “integrated” does indeed describe Spinner’s controller 30 mounted to the body of his actuator 26, because mounting together of several parts inherently means the parts are rigidly secured together as a single unit so that the combination constitutes a unitary whole, which is the meaning of “integral” as supported by case law, e.g. In re Larson, 144 USPQ 347 (CCPA 1965). Further, Webster’s New International Dictionary (Second Edition) defines the verb “integrate” as “(2) To unite (parts or elements), so as to form a whole”. Mounting Spinner’s controller 30---with integrated network interface (transceiver) 72---to the body of his actuator 26 unites the parts so as to form a whole and thus reads on the claimed feature of “the control system integrated with a rotary-linear actuator.” This contrasts with an arrangement such as Sudo’s, where the control system 66 is remote from the actuator and connected only by a wire 64 (Fig.2), such that there is no rigid connection between the parts or single unit. Further, a control system and actuator are by definition two

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distinct entities—regardless of whether they are “integrated” or not---otherwise they would not have different names. Even though Spinner’s controller 30 is “housed within a sealed enclosure”, the controller is nevertheless “integrated with the rotary-linear actuator” since Spinner states that it is “preferably mounted on the body of the actuator [26]” (c.3, lines 58-60; Fig.1).

3. In summary, withdrawal of the rejection (A) does not change the status of the claims since the remaining rejections (B)-(D) cover all pending claims 1-4 and 6-27. For the above reasons, and for the reasons given in the examiner’s answer, it is believed that the rejections (B)-(D) should be sustained.

Respectfully submitted,



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Primary Examiner
Art Unit 2834

bsm
October 4, 2005

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